

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/013949

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ A61B8/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ A61B8/00-8/15

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2004

Kokai Jitsuyo Shinan Koho 1971-2004 Jitsuyo Shinan Toroku Koho 1996-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

JSTPlus FILE (JOIS), Web of Science

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	JP 2-94579 A (Hitachi, Ltd., Hitachi Metals, Ltd.), 05 April, 1990 (05.04.90), Full text; all drawings (Family: none)	1-5 6
X A	Hiroshi MASUZAWA et al., Electrostrictive Materials for Ultrasonic Probes in the Pb(Mg _{1/3} Nb _{2/3})O ₃ -PbTiO ₃ System, Japanese Journal of Applied Physics. Supplement., 30 November, 1989 (30.11.89), Vol.28, Supplement28-2, pages 101 to 104	1 2-6

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
08 December, 2004 (08.12.04)

Date of mailing of the international search report
25 January, 2005 (25.01.05)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Igal Ladabaum et al., Surface Micromachined Capacitive Ultrasonic Transducers., IEEE Transaction on Ultrasonics, Ferroelectrics, and Frequency Control, 1998.05, Vol.45, No.3, pages 678 to 690	1-6
A	X.C.Jin et al., Micromachined Capacitive Ultrasonic Immersion Transducer for Medical Imaging., Proceedings of 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 1998, Vol.20, No.2, pages 779 to 782	1-6
A	JP 2001-25094 A (Tayca Corp.), 26 January, 2001 (26.01.01), Full text; all drawings (Family: none)	1-6
A	JP 2001-161000 A (Ueda Japan Radio Co., Ltd.), 12 June, 2001 (12.06.01), Full text; all drawings (Family: none)	1-6
A	JP 4-345300 A (Fujitsu Ltd.), 01 December, 1992 (01.12.92), Full text; all drawings (Family: none)	1-6
A	JP 8-66395 A (Advanced Technology Laboratories, Inc.), 12 March, 1996 (12.03.96), Full text; all drawings & US 5492134 A & EP 689187 A1	1-6

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 21

because they relate to subject matter not required to be searched by this Authority, namely:

The invention as set forth in claim 21 is deemed to be concerned with diagnostic methods to be practiced on the human body and thus relates to a subject matter which this International Searching Authority is not required, under the provisions of Article 17(2)(a)(i) of the PCT (continued to extra sheet)

2. ☐ Claims Nos.:

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The matter common to the inventions of claims 1-20 is a matter disclosed in claim 1. However, the search has revealed that the matter disclosed in claim 1 is not novel since it is disclosed in document Hiroshi Masuzawa et al, Electrostrictive Materials for Ultrasonic Probes in the $Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$ System, Japanese Journal of Applied Physics. Supplement., 30 November, 1989 (30.11.89), vol. 28, Supplement 28-2, p.101-104.

Accordingly, the matter disclosed in claim 1 cannot be a special technical feature within the meaning of PCT Rule 13.2, second sentence.

(Continued to extra sheet)

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-6

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

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Continuation of Box No.II-1 of continuation of first sheet(2)

and Rule 39.1(iv) of the Regulations under the PCT, to search.

Continuation of Box No.III of continuation of first sheet(2)

Consequently, the inventions of claims 1-6, the invention of claim 7, the invention of claim 8, and the inventions of claims 9-20 do not satisfy the requirement of unity of invention.